

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>16123/PCT</b>		FOR FURTHER ACTION	See Form PCT/IPEA/416																								
International application No. <b>PCT/EP2004/008051</b>	International filing date (day/month/year) <b>19.07.2004</b>	Priority date (day/month/year) <b>18.07.2003</b>																									
International Patent Classification (IPC) or national classification and IPC <b>G01N1/42</b>																											
Applicant <b>FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E. V.</b>																											
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <b>14</b> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <b>9</b> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <table border="0"><tr><td><input checked="" type="checkbox"/></td><td>Box No. I</td><td>Basis of the report</td></tr><tr><td><input type="checkbox"/></td><td>Box No. II</td><td>Priority</td></tr><tr><td><input type="checkbox"/></td><td>Box No. III</td><td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Box No. IV</td><td>Lack of unity of invention</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Box No. V</td><td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VI</td><td>Certain documents cited</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VII</td><td>Certain defects in the international application</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VIII</td><td>Certain observations on the international application</td></tr></table>				<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input checked="" type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand		Date of completion of this report																									
Name and mailing address of the IPEA/EP		Authorized officer																									
Facsimile No.		Telephone No.																									

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. I	Basis of the report
1.	<p>With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p><input type="checkbox"/> This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:</p> <p><input type="checkbox"/> international search (Rule 12.3 and 23.1(b))</p> <p><input type="checkbox"/> publication of the international application (Rule 12.4)</p> <p><input type="checkbox"/> international preliminary examination (Rule 55.2 and/or 55.3)</p> <p>2. With regard to the elements of the international application, this report is based on <i>(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)</i>:</p> <p><input type="checkbox"/> the international application as originally filed/furnished</p> <p><input checked="" type="checkbox"/> the description:</p> <p>pages <u>1-25</u> _____ as originally filed/furnished</p> <p>pages* _____ received by this Authority on _____</p> <p>pages* _____ received by this Authority on _____</p> <p><input checked="" type="checkbox"/> the claims:</p> <p>nos. _____ as originally filed/furnished</p> <p>nos.* _____ as amended (together with any statement) under Article 19</p> <p>nos.* <u>1-46</u> _____ received by this Authority on <u>22.04.2005 with letter of 22.04.2005</u></p> <p>nos.* _____ received by this Authority on _____</p> <p><input checked="" type="checkbox"/> the drawings:</p> <p>sheets <u>1/11-11/11</u> _____ as originally filed/furnished</p> <p>sheets* _____ received by this Authority on _____</p> <p>sheets* _____ received by this Authority on _____</p> <p><input type="checkbox"/> a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.</p> <p>3. <input type="checkbox"/> The amendments have resulted in the cancellation of:</p> <p><input type="checkbox"/> the description, pages _____</p> <p><input type="checkbox"/> the claims, nos. _____</p> <p><input type="checkbox"/> the drawings, sheets/figs _____</p> <p><input type="checkbox"/> the sequence listing (<i>specify</i>): _____</p> <p><input type="checkbox"/> any table(s) related to sequence listing (<i>specify</i>): _____</p> <p>4. <input type="checkbox"/> This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).</p> <p><input type="checkbox"/> the description, pages _____</p> <p><input type="checkbox"/> the claims, nos. _____</p> <p><input type="checkbox"/> the drawings, sheets/figs _____</p> <p><input type="checkbox"/> the sequence listing (<i>specify</i>): _____</p> <p><input type="checkbox"/> any table(s) related to sequence listing (<i>specify</i>): _____</p>

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. IV Lack of unity of invention

1. ☒ In response to the invitation to restrict or pay additional fees the applicant has:
  - ☐ restricted the claims.
  - ☒ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☐ neither restricted the claims nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
  - ☐ complied with.
  - ☒ not complied with for the following reasons:
4. Consequently, this report has been established in respect of the following parts of the international application:
  - ☒ all parts.
  - ☐ the parts relating to claims Nos. \_\_\_\_\_

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	3-19, 24-28, 29c-46	YES
	Claims	1, 2, 20, 23, 29b	NO
Inventive step (IS)	Claims	3-9, 24-28, 29c-46	YES
	Claims	1, 2, 20-23, 29a, 29b	NO
Industrial applicability (IA)	Claims		YES
	Claims	1-46	NO
2. Citations and explanations (Rule 70.7)			
<u>INVENTION I - claims 1-28</u>			
1. This report makes reference to the following document:			
D1: US-A-4 680 945 (HOFFMEISTER ET AL)			
21 July 1987 (1987-07-21)			
2. The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claims 1, 2, 20 and 23 is not novel within the meaning of PCT Article 33(2).			
3. The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claims 21 and 22 does not involve an inventive step within the meaning of PCT Article 33(3).			
4. D1 (cf. figure 1 and column 2, line 38 to column 3, line 34) discloses (the references in parentheses are to this document):			

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	<p>device for manipulating a sample, more particularly for processing, investigating or inserting or withdrawing a cryosample, wherein during manipulation the sample is surrounded by an ambient gas, with</p> <ul style="list-style-type: none"><li>• a climate-control device (1+5) which cools the ambient gas and/or at least partially substitutes a protective gas (N<sub>2</sub>) therefor in order to avoid impairment of the sample by the ambient gas during manipulation;</li><li>• a protective receptacle (3) for receiving the sample during manipulation, wherein the climate-control device (1+5) is connected to the protective receptacle (3) in order to cool the ambient gas in the protective receptacle (3) and/or to substitute the protective gas therefor;</li><li>• a protective gas source (N<sub>2</sub>+ 5) which forms a part of the climate-control device (1+5) for the purpose of filling the protective receptacle (3) at least partially with a protective gas, wherein the protective gas prevents impairment of the sample during manipulation thereof; <u>wherein</u></li><li>• the protective gas source (N<sub>2</sub>) has an at least partially open supply vessel (1a+1b+2a+2b) which holds liquefied protective gas which is bled off into the protective receptacle (3).</li></ul> <p>Therefore, the subject matter of claim 1 is not novel (PCT Article 33(1) and (2)).</p>

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5. D1 likewise discloses a device for manipulating a sample as per claim 2. D1 is therefore prejudicial to the novelty of this claim (PCT Article 33(1) and (2)).
6. Claim 1+3 meets the PCT requirements for novelty and inventive step (PCT Article 33(2) and (3)):
1. D1, which is considered to represent the closest prior art, discloses a device from which the subject matter of claim 1+3 differs in that the protective gas supply vessel has a filter element.
- Therefore, the subject matter of claim 1+3 is novel (PCT Article 33(2)).
2. The subject matter of claim 1+3 involves an inventive step because the prior art neither discloses nor proposes use of a filter element in order to retain bacteria, viruses or other particles present in the liquefied protective gas when bleeding off said gas (PCT Article 33(3)).
7. Claims 4-19 are dependent on claim 1+3 and therefore likewise meet the PCT requirements for novelty and inventive step (PCT Article 33(2) and (3)).
8. The subject matter of claims 20 and 23 pertains to

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an ordinary use of the device with all its claimed features as per claims 1 and 2, respectively. Consequently, the same objections as those directed against claims 1 and 2 can also be directed, *mutatis mutandis*, against claims 20 and 23: that is, the disclosure of D1 is prejudicial to the novelty of claims 20 and 23 (PCT Article 33(2)).

9. Dependent claims 21 and 22 pertain to a minor modification of the process according to claim 20 of the kind that a person skilled in the art routinely makes on the basis of familiar considerations, especially since the resulting advantages are readily foreseeable. Consequently, the subject matter of claims 21 and 22 also fails to involve an inventive step (PCT Article 33(3)).
10. The subject matter of claim 20+24 pertains to an ordinary use of the device with all its claimed features as per claim 1+3. Consequently, *mutatis mutandis*, claim 20+24 meets the PCT requirements for novelty and inventive step (PCT Article 33(2) and (3)).
11. Claims 25-28 are dependent on claim 20+24 and therefore likewise meet the PCT requirements for novelty and inventive step (PCT Article 33(2) and (3)).

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INVENTION II - claims 29-46

12. Owing to the choice between different alternatives permitted by use of the word "or" in claim 29, paragraph 4, claim 29 claims three device variants:

1. Claim 29a claims a device in which, *inter alia*, the protective receptacle is mobile and has an aperture on its lower face to permit a sample to be introduced into the protective receptacle;

2. Claim 29b claims a device in which, *inter alia*, the protective receptacle is mobile and has an aperture on its lower face to permit a sample to be withdrawn therefrom;

3. Claim 29c claims a device in which, *inter alia*, the protective receptacle is mobile and has an aperture on its lower face to permit the protective receptacle to be placed on a sample.

13. This report makes reference to the following documents:

D2: FR 772 020 A (USINES CHIMIQUES DES  
LABORATOIRES FRANCAIS)

22 October 1934 (1934-10-22)

D3: US-A-3 267 830 (GAASBEEK WILLIAM H. VAN)

23 August 1966 (1966-08-23)

14. D2 (cf. figures 1 and 2 and page 1, line 41 to



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page 2, line 33) discloses (the references in parentheses are to this document):

device for manipulating a sample, wherein during manipulation the sample is surrounded by an ambient gas, with

- a climate-control device (4) which at least partially substitutes a protective gas for the ambient gas in order to avoid impairment of the sample by the ambient gas during manipulation;
- a protective receptacle (3) for receiving the sample during manipulation, wherein the climate-control device (4) is connected to the protective receptacle (3) in order to substitute the protective gas for the ambient gas in the protective receptacle (3), wherein
- the protective receptacle (3) is mobile [*the protective receptacle is demountable*] and has an aperture (9) on its lower face to permit the sample to be withdrawn therefrom; and
- a gas-tight or gas exchange-reduced lock (5) is provided for introducing the sample into the protective receptacle (3) and for withdrawing the sample from the protective receptacle (3).

Therefore, the subject matter of claim 29b is not novel (PCT Article 33(1) and (2)).

15. Independent claim 29a pertains to a minor structural modification of the device according to claim 29b of the kind that a person skilled in the

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art routinely makes on the basis of familiar considerations, especially since the resulting advantages are readily foreseeable. Consequently, the subject matter of claim 29a does not involve an inventive step (PCT Article 33(3)).

16. Claim 29c meets the PCT requirements for novelty and inventive step (PCT Article 33(2) and (3)):

1. D3, which is considered to represent the closest prior art, discloses a device from which the subject matter of claim 29c differs in that a gas-tight or gas exchange-reduced lock (5) is provided for introducing a sample into the protective receptacle (3) and for withdrawing a sample from the protective receptacle (3).

Therefore, the subject matter of claim 29c is novel (PCT Article 33(2)).

2. The subject matter of claim 29c involves an inventive step because the prior art neither discloses nor proposes providing a device as per the preamble of claim 29c with a further aperture for the purpose of withdrawing a sample from the protective receptacle without demounting the protective receptacle (PCT Article 33(3)).

17. Claims 30-46 are dependent on claim 29c and therefore likewise meet the PCT requirements for

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novelty and inventive step (PCT Article 33(2) and  
(3)).

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

**Box IV****Lack of unity of invention**

1. US 3267830 (D1) discloses a device for the insertion or withdrawal of a cryosample with a climate-control device which at least partially substitutes a protective gas for the ambient gas.

The features of the preamble of claims 1, 20 and 29 are known and therefore excluded as features serving to link the different inventions.

Since the preamble of claims 1, 20 and 29 is known, the problem solved by claim 1 is likewise excluded as a single general inventive concept linking the different inventions.

2. The feature of claim 1 (or claim 20) which is not disclosed in D1 is:

"...the protective gas source has an at least partially open supply-vessel which holds liquefied protective gas...".

Consequently, this forms the potential special technical feature (PSTF1) of claim 1 with dependent claims 2-19 (or of claim 20 with dependent claims 21-28) and solves the following problem:

## Supplemental Box

to bleed off gas into the protective receptacle.

3. The feature of claim 29 which is not disclosed in D1 is:

"...a gas-tight or gas exchange-reduced lock...".

Consequently, this forms the potential special technical feature (PSTF2) of claim 29 (with dependent claims 30-46) and solves the following problem:

to insert or withdraw a cryosample.

4. Because PSTF1 (claim 1 or 20) solves the problem of bleeding off gas into the protective receptacle and PSTF2 (claim 29) solves the problem of inserting or removing a cryosample, PSTF1 and PSTF2 cannot be considered the same or corresponding special technical features. Consequently, no technical relationship is present among claims 1 and 29 within the meaning of PCT Rule 13.2 and the requirement for unity of invention according to PCT Rule 13.1 is therefore not met.
5. The application contains two inventions which are not linked by a single general inventive concept because the claimed inventions lack any feature which is the same or a corresponding special technical feature and therefore no technical

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relationship is present among the inventions.